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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,405	04/22/2002	Phillip Raymond Michael Denne	THC.P. US0001	8973

7590 06/27/2003

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EXAMINER

AGUIRRECHEA, JAYDI A

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/030,405

Applicant(s)

DENNE, PHILLIP RAYMOND  
MICHAEL

Examiner

Jaydi A. Aguirrechea

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 is/are rejected.
- 7) ☒ Claim(s) 5, 9, 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) IDS
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Drawings*

1. The proposed informal drawing correction and/or the proposed substitute sheets of drawings, filed on 4/3/03 has been approved. The examiner notes that the drawings are considered informal because the numbers and lines are not uniformly thick.

### *Claim Rejections - 35 USC § 112*

2. The rejection of Claims 1-2 under 35 U.S.C. 112, first paragraph, is withdrawn.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-3, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mosciatti et al ((US 4245917) in view of Ishiyama et al (US 5955798).

Mosciatti teaches an electromagnetic actuator comprising a first magnetic assembly (76), a second magnetic assembly (82) the polarity of one of said assemblies being changeable in response to an electrical control signal in order to cause relative movement between the first and second assemblies along an axis of relative movement (Column 3, lines 45-68 and column 4,

lines 1-15), one of the assemblies (76) being provided with a fin (201) projecting transversely to said axis of relative movement and the other of the assemblies being provided with a slot extending parallel to the axis of relative movement and arranged to receive the fin (201).

However, Mosciatti fails to disclose the stator having a plurality of magnetic elements in order to create axially alternating magnetic fields.

Ishiyama et al. teaches a stator provided with a plurality of magnetic elements in order to alternate the magnetic field (Fig. 2).

It would have been obvious to one skilled in the art at the time the invention was made to use the stator disclosed by Ishiyama on the electromagnetic actuator disclosed by Mosciatti for the purpose of alternating the magnetic fields.

4. With regards to claim 2, Mosciatti discloses a cylinder housing the assembly.
5. With regards to claim 3, Ishiyama discloses the stator comprising a plurality of permanent magnetic sections having pole pieces (Fig. 2).
6. With regards to claim 6, Mosciatti discloses the coils wound in the stator (Column 3, lines 25-40).
7. With regards to claim 8, Mosciatti discloses the coils wound to create a gap in the coils.
8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mosciatti in view of Ishiyama as applied to claim 1-3 above, and further in view of Denne (GB 2358967A).

The combination of Mosciatti and Ishiyama teaches the claimed invention except for the pole pieces being tapered toward the outer periphery of the assembly. Denne discloses the pole pieces being tapered toward the outer periphery of the assembly.

It would have been obvious to one skilled in the art at the time the invention was made to use the tapered pole pieces disclosed by Denne on the electromagnetic actuator disclosed by Mosciatti and Ishiyama for the purpose of directing the fluxes of the magnets radially outwards.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mosciatti in view of Ishiyama as applied to claim 1-3 and 6 above, and further in view of Kobayachi (JP 59165953A)

Mosciatti and Ishiyama disclose the claimed invention except for the coils wound in pairs in a figure of eight. Kobayachi teaches the coils wound in a figure of eight for the purpose of obtaining a smooth and strong thrust force.

It would have been obvious to one skilled in the art at the time the invention was made to use the coils disclosed by Kobayachi on the electromagnetic actuator disclosed by Mosciatti and Ishiyama for the purpose of obtaining a smooth and strong thrust force.

***Allowable Subject Matter***

10. Claims 5, 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach either alone or in combination, the slot being provided with a sliding seal and the assembly lined with a hard, slotted dielectric tube.

*Conclusion*

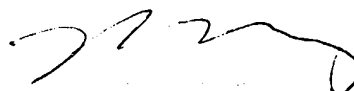
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi A. Aguirrechea whose telephone number is 703-305-2277. The examiner can normally be reached on M-Th 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
JAA  
June 18, 2003

  
[Illegible text]